

GUIDED IMAGERY AND WATERCOLOR PAINTING FOR MS

**Guided Imagery and Watercolor Painting on Stress and Mood in Adults with Multiple
Sclerosis**

Viviana Iris Torres-Calcagno

Albertus Magnus College

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Therapy and Counseling (MAATC)

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Albertus Magnus College

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IRB REVIEW #: S20-6

Dear Ms. Viviana Torres:

This letter serves to officially notify you of approval by the Albertus Magnus College IRB for you to conduct your study employing the methodology described in your IRB application. Please ensure that copyright protected material included in your study is properly protected as well as the confidentiality of your research participants.

Your study is authorized to begin as of the date of this approval letter and is valid for one year, ending on March 5th, 2021.

If you have any questions, please contact Hilda Speicher, Ph.D., the IRB Administrator, by phone at 203-773-8548 or by e-mail at hspeicher@albertus.edu

Sincerely,

Sean P. O'Connell, Ph.D.
IRB Chair

Hilda Speicher, Ph.D.
IRB Administrator

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Ragaa Mazen, Ph.D., NCC
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Masters of Arts in Art Therapy and Counseling
Director of Masters of Science in Human Services
Albertus Magnus College

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Abstract

Multiple Sclerosis is one of the most common neurological diseases in the world with approximately two million three hundred thousand individuals worldwide living with a diagnosis. It is a debilitating chronic inflammatory disease that effects the central nervous system and leads to neurological defects and severe cognitive and physical disabilities. The intended purpose of this study was to compare the effects of guided imagery alone versus guided imagery and art therapy, on the experience of stress, affect, and over well-being in adults who have MS. The Positive and Negative Affect Scale (PANAS) and a Likert-type Perceived Stress scale were to be used in a pre/post design to assess changes in stress and affect between the experimental and control groups. It was hypothesized that perceived stress and negative affect would decrease, and positive affect would increase for participants in both conditions, with the most significant levels of change occurring in those who participated in the experimental art making condition. Unfortunately, the study could not be conducted as designed due to the 2020 COVID-19 pandemic. A trial run was conducted with two volunteer participants in which results showed improvements in stress and affect, suggesting that the integration of guided imagery and art therapy may be beneficial. The researcher also examined and discussed two alternative hypothetical outcomes.

Guided Imagery and Watercolor Painting on Stress in Adults with Multiple Sclerosis

Multiple Sclerosis (MS) is a chronic inflammatory disease that affects the central nervous system (CNS) (Bishop & Rumrill, 2015). It is characterized by recurrent and intermittent episodes of inflammation that damage the myelin and axons in the brain, optic nerves, and spinal cord. Multiple Sclerosis also leads to neurological defects and severe cognitive and physical disabilities (Ghasemi et al., 2017). It is one of the most common neurological diseases in the world (Rumrill & Roessler, 2015).

Multiple Sclerosis causes inflammation, demyelination, and scarring on the white matter of the brain and spinal cord, thus classifying it as an autoimmune disease (Roger & MacDonald, 2015). Worldwide there are approximately two million three hundred thousand individuals living with a diagnosis of MS (National Multiple Sclerosis Society [NMSS], n.d.), with an estimated one million living in the United States (Wallin et al., 2019). The cause of MS is still not entirely understood, but current research suggests that it may be a multifactorial disease with factors such as the immune system, the destruction of the blood-brain barrier, environmental factors, genetics, and microbial factors that influence an individual's likelihood of developing the disease (Sharma & Jhade, 2014).

Multiple Sclerosis is typically first diagnosed in individuals in their mid-twenties to mid-forties (Sharma & Jhade, 2014). It is three times more common in women than men (Bishop & Rumrill, 2015). Individuals with this disease experience what are known as “attacks” or “exacerbations” (Sharma & Jhade, 2014). Attacks vary in severity and are characterized by a sudden deterioration of normal physical abilities.

There are four subtypes of MS: relapsing remitting (RRMS), secondary progressive (SPMS), primary progressive (PPMS), and progressive relapsing (PRMS). Each subtype is

classified by pattern of prognosis and extent, severity, and frequency of attacks. Relapsing remitting is the most common, with approximately 85% of individuals initially being diagnosed with this subtype. This subtype is characterized by unpredictable relapses followed by periods of months to years of generally quiet remission with no new symptoms or signs of disease activity. Secondary progressive, the second subtype, is characterized as a phase in which there is more disability and a steady decline in abilities, however, relapses are less frequent and sporadic. Up to 50% of individuals who have a diagnosis of RRMS will eventually enter this phase. Primary progressive has a slower onset with no distinct attacks. Symptoms steadily become worse with no, or occasional, minor remissions. The final and least common subtype- Progressive relapsing causes simultaneous rapid neurological decline and attacks from onset of the disease (Sharma & Jhade, 2014). The last two subtypes are the least common, with only 10% of individuals being diagnosed with PPMS and 5% with PRMS (Bishop and Rumrill, 2015).

Multiple Sclerosis is an unpredictable disease and its symptoms are no different. It is a disease that effects the white and grey matter of the brain (Silveira et al., 2019). Lesions affect any region of the Central Nervous System making symptoms unpredictable and uncertain (Ghasemi et al., 2017). Individuals with MS experience physical, emotional, and psychological symptoms. The most common physiological symptoms associated with the disease are fatigue, imbalance, muscle weakness and spasticity, chronic pain, cognitive impairment, bladder and bowel dysfunction, visual and speech impairment, sensory disturbances, and mobility impairment (Rogers & MacDonald, 2015). Physiological symptoms can be severe or mild and have a long or short duration (Sharma & Jhade, 2014). Symptoms vary greatly from person to person and may be more common or dominant throughout the course of MS (Ghasemi et al., 2017).

In addition to physiological symptoms, people with MS can experience many neuropsychiatric complications (Silveira et al., 2019). Neuropsychiatric symptoms are behavioral and psychological symptoms caused by the diseases' direct biological impact on the brain (Sachdev & Mohan, 2013). Silveira et al. (2019) reports an increase in evidence that suggests that the development of affect disturbances in individuals with MS is due to organic changes in the brain. Neuropsychiatric complications associated with MS appear to stem from a greater number of lesions in the left arcuate fasciculus, prefrontal cortex, anterior temporal lobe and parietal lobe. In addition to neuropsychiatric symptoms, individuals with MS also experience secondary psychological symptoms, such as depressive symptomatology, as a result of the diseases' relation to and effect on psychosocial factors (Silveira et al., 2019).

Unpredictability of symptoms plays a significant role in creating stress for individuals (Ghasemi et al., 2017). Simpson et al. (2017) suggested that in addition to unpredictable relapses, disease progression, problematic comorbidity, complex drug regimes, and manifold social and role difficulties contribute to stress. Furthermore, they reported that stress may exacerbate disease activity. Mohr (2010) recognized that long-term prognosis of the disease can also create and result in added stress.

Stressors unrelated to the disease such as negative or uncontrollable events and prolonged emotional stress from life events may lead to exacerbations of MS (Schwartz et al., 1999). In their study, they found that the risk of disease progression increased as stress levels increased. In addition, individuals who reported more than one stressful life event in the past six months had a significant difference in risk of disease progression. The negative impact of overall stress on individuals with MS makes stress management and reduction most important.

Disease modifying therapies (DMTs) are the primary course of treatment for individuals with MS (Moss et al., 2017). The purpose of DMTs is to reduce inflammatory activity, prevent relapse, and reduce worsening of disability (Finkelsztein, 2014). However, these types of therapies are limited in efficacy (Kim et al., 2018). They may cause a wide range of adverse effects such as fever, nausea, asthenia, allergic reactions, cardiac toxicity, and skin cancer (Rogers & MacDonald, 2015). Dissatisfaction with these models of therapy and the lack of efficacy in treating particular symptoms are just some of the reasons individuals with MS seek other methods of treatment in addition to DMT's to manage MS (Olsen, 2009).

Complementary and alternative medicines (CAMs) are non-pharmacological health practices that are not a part of mainstream medicine (Edwards, 2012). Examples of these health practices include natural products, such as herbal medicines and probiotics, and mind and body practices such as mindfulness-based stress reduction, cognitive behavioral therapy, progressive muscle relaxation, exercise therapy, tai chi, yoga, acupuncture, massage therapy, and spinal manipulation (Edwards, 2012). Guided imagery, breathing techniques, biofeedback, and hypnosis are also various types of Complementary and Alternative Medicines (Halpin et al., 2002). In addition, there are also creative-arts therapies such as music therapy, art therapy, and psychodrama (Nainis et al., 2006). Research shows that CAM's are frequently and significantly used as methods of treatment with chronic diseases (Gale, 2014).

Complementary and Alternative Medicines are widely used by individuals with MS in addition to conventional medicine to help manage various aspects of the disease. Reasons for the inclusion of the health practices include overall self-care management, development of coping strategies, and the treatment of specific symptoms conventional medicines do not treat such as pain, fatigue, and problems with balance and walking (Nayak el at., 2003). The results of a

survey conducted by the Multiple Sclerosis Foundation showed that 57% of the more than 11,000 respondents living with MS reported having at one point or another, tried at least one Complementary and Alternative modality (Case et al., 2018). One of the most common reasons for using alternative modalities is dissatisfaction with effectiveness of conventional medications and treatments used for the disease (Gale, 2014; Olsen, 2009; Bowling, 2007). Individuals with MS also report using various alternative modalities to help psychological stress (Kim et al., 2018).

The literature on the use of guided imagery and art therapy to reduce stress in individuals with MS is scarce. The available literature, however, illustrates the benefits of guided imagery and art therapy among populations of individuals living with chronic illnesses. Guided imagery (GI) is a mind-body CAM in which individuals are taught to replace negative and stressful feelings by focusing on pleasant images (NCCIH; Relaxation Technique for Health, n.d.). When used with individuals living with a chronic illness, as both a stand-alone treatment or in addition to conventional medical treatment(s), guided imagery slows breathing, lowers blood pressure, and increases feelings of wellbeing by activating the body's natural response, and has been found to be beneficial for stress, depression, and possibly inflammatory diseases (Case et al., 2018). Guided imagery techniques also help distract individuals from symptoms and unpleasant feelings about their disease (Nooner et al., 2016).

Menzie et al. (2012) conducted a 10-week daily GI intervention with women with a diagnosis of fibromyalgia. Results of the study exhibited statistically significant improvements in perceived stress, self-efficacy, and levels of fatigue, pain severity, and depression. After participating in a four-week guided imagery intervention, thyroid cancer patients undergoing radioactive iodine therapy reported significant decreases in stress and fatigue (Lee et al., 2013).

For individuals with Multiple Sclerosis, research suggests guided imagery can influence the immune system. Changes in the hypothalamic-pituitary-adrenal axis demonstrate the potential immune-mediating effects of guided imagery, making it a potential treatment modality for Multiple Sclerosis. Case et al. (2018) studied the effects of Healing Light Guided Imagery (HLGI), a GI modality created specifically for individuals with MS and their symptoms. HLGI is not only used as a relaxation modality, but also aids in changing behavior, relieving symptoms, and improving mood through the use of visualization and directed imagery. In comparison to the journaling control group, those who participated in the 10-week HLGI, reported a 75% decrease in depressed mood scores, 24% decrease in fatigue scores, a 38% increase in physical quality of life scores, and a 30% increase in mental quality of life. Given the significant correlation between disease activity and stressful life events, and the promising effects of stress management techniques on disease activity, mind-body CAM's, such guided imagery, are believed to be beneficial due to their ability to reduce autonomic arousal and stress (Case et al., 2018).

The American Art Therapy Association (AATA) defines art therapy as “an integrative mental health and human services profession...used to improve cognitive and sensorimotor functions, foster self-esteem and self-awareness, cultivate emotional resilience, promote insight, enhance social skills, reduce and resolve conflicts and distress, and advance societal and ecological change” (American Art Therapy Association [AATA], n.d. *About art therapy*). To date, there has been little research on the use of art therapy to manage Multiple Sclerosis. However, the literature regarding to the use of art therapy for chronic illnesses has been promising and favorable (Malchiodi, 1999a; Wadeson, 2003; Elkis-Abuhoff et al., 2008).

Malchiodi (1999a) suggests that the creative process may produce positive physical changes. Art allows individuals with chronic illnesses to gain insight into their illness and assists

in overall healing and well-being (Zammit, 2001). Both Elkis-Abuhoff et al. (2008) and Wadeson (2003) noted that art therapy was beneficial for individuals living with Parkinson's Disease. Elkis-Abuhoff et al. (2008) conducted a study using clay manipulation to decrease somatic and emotional symptoms in individuals with Parkinson's Disease and their caregivers. The art therapy intervention not only allowed for expression of emotions through color, but also evoked positive emotional responses and decreased symptom severity. Wadeson (2003) wrote about an individual with Parkinson's who expressed the benefits art making brought him. He explained how creating new images not only brought feelings of relaxation and peacefulness which helped distract from the disease and symptoms, but also shared how focusing on colors and details during art making relieved the stress caused by his illness.

The integration of two Complementary and Alternative Medicine modalities, such as guided imagery and art therapy, can play a significant role in initiating and supporting the intimate connection between mind and body (Baron, 1989). Baron used guided imagery and art therapy when treating individuals with cancer. Art allowed individuals a way to concretely capture and recreate images in their minds that provided insight into their lives, feelings towards their illness, treatment, and themselves. For a patient who could no longer speak due to throat cancer, the art provided and served as an outlet for his emotions. After participating in a guided imagery process, another patient of Baron's was able to illustrate his feelings about cancer, radiation treatment, and his immune system in a drawing through color, line, shape, and symbols.

In a study conducted by Monti et al. (2016), women with cancer participated in an eight-week Mindfulness-Based Art Therapy (MBAT) group intervention that integrated mindfulness meditation and art therapy. The overall goal of the MBAT group intervention was to decrease distress and improve quality of life. The MBAT group intervention provided the patients with an

opportunity to extend coping strategies, both verbal and nonverbal expression and to receive greater support. Results showed that individuals who participated in the MBAT reported significant improvements in health-related quality of life and significant reduction of symptoms of distress.

O'Neill and Moss (2015) conducted a 12-week group art therapy session for individuals with chronic pain which included weekly art therapy directives as responses to guided imagery and relaxation techniques. The group art therapy was beneficial for those living with chronic pain, as it allowed for expression of feelings and emotions through guided imagery and art making.

The limited research suggests benefits for individuals living with chronic illnesses when two Complementary and Alternative Medicine modalities, such as mindfulness or guided imagery, are used in conjunction with art therapy. However, there are no studies evaluating the efficacy and benefits of using both with individuals who have Multiple Sclerosis. Stress related to disease unpredictability, prognosis, and symptoms, in addition to external stressors unrelated to the disease, all negatively impact disease activity and may exacerbate MS symptoms and attacks. For this reason, it is beneficial for individuals to include effective stress management techniques as part of their treatment plan. As such, research needs to be conducted to evaluate the efficacy of using art therapy in addition to guided imagery to reduce stress and improve overall mood and wellbeing for adults with MS.

The purpose of this present study was to explore the use of guided imagery, and guided imagery with art making, in a sample of individuals with Multiple Sclerosis. It was hypothesized that participants in both conditions would experience decreases in perceived stress levels, increases in positive affect, and decreases in negative affect. In addition, it was hypothesized that the most

significant change would be in those in the art making in addition occur in those in the art making plus guided imagery condition compared to the guided imagery only condition.

Method

Participants

The original intention for this study was to recruit ($N \geq 30$) participants who were 18 years of age and older, and who self-identified as having a diagnosis of Multiple Sclerosis. They were to be recruited primarily from the state of Connecticut, through convenience and snowball sampling. Recruitment strategies included contacting people who were part of MS support groups, posting flyers (Appendix A) in public places (such as bookstores and coffee shops), and posting on various forms of social media. Participants were to be randomly assigned to one of two conditions, experimental and control. The condition of the first session was to be determined by a flip of a coin, and all remaining sessions were to be alternated between the two conditions.

However, IRB approval for this study was given just as the 2020 COVID-19 pandemic began. For the safety of participants and all those involved, participant recruitment was stopped, and research was not able to be conducted as originally planned. The study only included two participant volunteers, with only one having a diagnosis of MS.

Instruments

Demographic Questionnaire

The demographic questionnaire (Appendix B) included questions about participants' age, gender, and race/ethnicity. Participants were also asked questions related to their MS and history of treatment.

Guided Imagery Script

The guided imagery script (Appendix C) used for this study was adapted from the “Relaxation and Light for Healing” script (Rogel Cancer Center; Guided Imagery Podcast, n.d) that is used with cancer patients.

Positive and Negative Affect Schedule

The Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) was used to assess affect in participants both pre and post-interventions. It is a 20-item self-report instrument compromised of two mood scales: Positive Affect (PA) and Negative Affect (NA). Each mood scale includes 10-items. PA relates to positive emotions such as enthusiasm, activation, and alertness and scores indicate high energy, full concentration, and pleasurable engagement. Lower scores suggest lethargy and sadness. Higher NA suggest distress and unpleasurable engagement that relate to undesirable emotions such as anger, contempt, disgust, guilt, fear and nervousness. Lower scores suggest a state of calmness and serenity (Watson et al., 1988). The PANAS has been frequently used to measure and understand general emotional experience (Lac & Donaldson, 2018).

Each item is rated on a 5-point Likert-type scale (1-5), ranging from 1 = very slightly or not at all to 5 = extremely (Watson, et al., 1988). The total score from items 1, 3, 5, 9, 10, 12, 14, 16, 17 represent the Positive Affect score and can range from 10-50. Total scores from items 2, 4, 6, 7, 8, 11, 13, 15, 18, and 20 represent the Negative score and can range from 10-50. Higher PA score totals represent higher levels of positive affect, while lower NA scores totals represent lower levels of negative affect. The Positive and Negetive Affect Scale can be used to measure affect in the present moment, today, during the past few days, past week, past few weeks, and past year, as the PA and NA scales showed a significant level of stability throughout each time frame (Watson et al., 1988)

Using Cronbach's coefficient alpha (α), Watson et al. (1988) found high internal consistency and low intercorrelation between the Positive and Negative Affect Scales on the PANAS. Internal consistency for PA ranged from .86 to .90 and from .84 to .87 for NA, while intercorrelation ranged from -.12 to -.23. At the end of an 8-week retest interval for each rated time frame, the PANAS also showed sufficient test-retest reliability that ranged from .47 to .68 for Positive Affect and .39 to .71 for Negative Affect with retest stability increasing as the rated time frame lengthened. They noted that PA and NA scales showed a noteworthy level of stability in every time frame, including in the moment ratings. The PANAS also demonstrates good external validity.

Perceived Stress Assessment

A Likert-type scale created by the present researcher was also used to evaluate participants' perceived stress level pre and post-intervention. The scale ranges from 1-5, where 1= not at all stressed, and 5= extremely stressed.

Materials

The study was designed for participants in the experimental group to receive one green two-pocket folder, one .7mm blue Jot Gel Pen, one sheet of 6"x9" Richeson Bulk Pack Watercolor paper, one Pelikan Watercolor and Gouache Pan - Opaque Colors, Set of 24, one size 8 Royal Brush Big Kids Choice Paint Brush, one size 12 Royal Brush Big Kid Choice Flat Synthetic Hair Soft Rubber Grip Handle Paint Brush, one cup for water, and two paper towel sheets. Participants in the control group were going to be provided with one green two-pocket folders and one .7mm blue Jot Gel Pen. The Healing Light and Relaxation guided imagery for both groups was pre-recorded and was to be played from an iPhone 8.

Procedure

Prior to the stopping of recruitment, flyers posted in public and on social media were used to recruit participants. The researcher also contacted and met with individuals from various MS support groups and communities in attempts to recruit participants and spread word about the study. Participants were to be compensated for their time with snacks and refreshments following the study. The original intent was to have at least two and no more than six participants in each group session. The study was to be conducted in private study rooms at four different public libraries. Participants would have chosen a location that was suitable for their specific needs.

For both groups, documents on the left side of the folder were to be coded and organized in the following order: two copies of the consent form (Appendix D), a demographic questionnaire, the Likert-type Scale Perceived Stress Assessment, and the Positive and Negative Affect Schedule (PANAS). On the right side of the folder documents were to be coded and organized in the following order: a blank piece of paper, the Likert-scale assessing stress, the Positive and Negative Affect Schedule, and the debriefing statement (Appendix E). The participants in the guided imagery (GI) followed by art making (treatment) group also would have had an art-work release form (Appendix F) which preceded the debriefing statement.

For the intended study, folders and materials were to be placed at a seat prior to the session, and participants would be asked to find a seat where there was a folder. The participants in the treatment group would also have art materials pre-set on the table in front of them. Once all participants had arrived, the researcher would briefly introduce herself and if participants were accompanied by caregivers, the caregivers were going to be instructed to be an observer and assist minimally as needed.

The participants would then be asked to open their folders, take out the papers on the left side, and asked to refer to the first two papers which would consist of two copies of the consent form. Participants would follow along as the researcher read the consent form out-loud and then would be asked to sign only one form for the researcher, which was to be put back on the left side of the folder. The second consent form was for the participant to keep. Participants would then be asked to fill out the demographic questionnaire, the Likert-type Scale Perceived Stress Assessment, and the PANAS, which would have taken approximately 10-15 minutes. Upon completion, participants would then be asked to place their papers back in the left side of their folders and close them. At this time participants would be informed that they would be participating in a 15-minute guided imagery. Once all participants were in a comfortable position the researcher would begin the recorded GI.

Following the guided imagery, participants in the experimental group were to be informed of the art directive (Appendix G). Participants would have 20 minutes for the art directive in which they would be asked to use the watercolor paints, paint brushes, and water to “create a painting in any way you want portraying how you are currently feeling.” If a participant asked for further instruction, the researcher was going to state, “You can paint abstractly using line, color, shape or symbol, or you can paint something more realistic. Whatever you want.” The researcher was going to keep track of time and let participants know when they had ten, five, and two minutes left.

Following the art making, the participants would be told to clear the area in front of them and put their artwork to the side, but that they could leave all art supplies on the table in front of them. Next, participants were to be asked to reopen their folders and take out the papers on the right side of their folders. They would be asked to remove the blank piece of paper in the front

and would be given five to ten minutes to fill-out and complete the Likert-scale assessing stress and PANAS again. Once all participants completed the two measures, the researcher would then ask them to read and sign the artwork release form, which the researcher would then collect. They were then to be asked to refer to the debriefing statement and read along as the researcher read it out-loud. Participants would then be told to place the papers back in the right side of the folder, told that the study was complete, and would be asked if there were any questions. If permission was provided, the researcher would photograph the artwork. If a participant did not want to take their artwork with them, the researcher would keep the artwork and would store it for no less than three years in a secure location. Digital photographs of the artwork were to be stored securely on a SD card.

Following the completion of the guided imagery, participants in the control group would then be asked to reopen their folders and take out the papers on the right side. They would be asked to remove the blank piece of paper from the front and were to be given five to ten minutes to fill-out and complete the Likert-type Scale Perceived Stress Assessment and PANAS again. Once all participants completed the two measures, the researcher would ask them to reference the debriefing statement as the researcher read it out-loud to the participants. Lastly, they would be asked to place the papers back in the right side of the folder, told the study was complete, and asked if there were any questions.

However, due to the change in direction of the study, various aspects of the procedure had to be modified and did not occur as originally planned. The participant sample only consisted of two participant volunteers, one who did not meet the participant criteria. Based on the fact that one participant had MS she was assigned to the experimental condition, and the other participant was assigned to the comparison condition. The sessions were conducted in each

individual participants' place of residence, which was neither private nor completely quiet. Folders were not pre-placed by a seat prior to the start of the study, but rather were distributed to each participant after sitting down. Art materials were also distributed after the participant had sat in her seat. In addition, the researcher was unable to acquire all the necessary art materials, therefore a 12" x16" sheet of regular drawing paper and a Pelikan Watercolor and Gouache Pan - Opaque Colors, Set of 12 were used as substitutes for the sheet of 6"x9" Richeson Bulk Pack Watercolor paper and Pelikan Watercolor and Gouache Pan - Opaque Colors, Set of 24.

The researcher conducted each session and guided participants through each individual session as was intended in the original study. No changes were made in the sequencing or layout of the sessions. Participants were able to complete all forms and questionnaires both pre and post intervention. . The participant in the experimental group chose to keep her painting and provided consent to photograph her artwork.

Results

Since the study could not be conducted as originally planned, the researcher ran the study with two participant volunteers, with only meeting the participant criteria. One participant was a 26-year-old white man who did not have a diagnosis of Multiple Sclerosis. The second participant was a 50-year-old white woman who does have a diagnosis of MS. She reported being first diagnosed with Multiple Sclerosis in 2002 and has experienced symptoms related to the diagnosis for 25 years. This individual reported having Relapsing-Remitting MS (RRMS). In order to gain insight into how the treatment protocol would run with a participant with MS, the 50-year old white female was assigned to the experimental condition which involved participating in a guided imagery intervention followed by an art making intervention. The 26-year-old man was assigned to the comparison condition, which involved participating solely in

the guided imagery intervention. Overall investigation of participants' pre and post scores on both the stress and affect measurements indicated the most significant impact occurred for the individual participating in the experimental condition.

Analysis of both participants' responses to the Likert-type Perceived Stress Scale indicated an overall decrease in current perceived stress across all participants, with the greatest reduction in perceived stress reported by the experimental condition participant. Analysis of scores from the experimental condition participant indicated a 3-point reduction in perceived stress from a reported "5= extremely stressed" pre-guided imagery and art making interventions, to a reported "2=slightly stressed" post interventions. The control participant showed a one-point decrease in perceived stress from a reported "2= slightly stressed" pre-guided imagery intervention, to a reported "1= not stressed at all", post-guided imagery intervention.

Scoring and analysis of both participants' responses on the Positive and Negative Affect Scale (PANAS) yielded mixed results. While both participants reported a decrease in Negative Affect (NA) pre to post test, the most significant change in NA scores was seen in the experimental condition participant. While NA scores only dropped one-point from 18 to 17, pre to post test for the comparison condition participant, the experimental condition participant experienced a 21-point decrease in NA, from 33 to 12. While Positive Affect (PA) increased for the experimental condition participant, PA actually decreased for the comparison condition participant. For this participant, PA decreased 8 points from 30 to 22, whereas PA increased 5 points from 45 to 50 for the other participant.

Discussion

This study was designed to examine the effects of two Complementary and Alternative Medicine (CAMs) modalities, guided imagery and art therapy, on stress, affect, and well-being

in adults with Multiple Sclerosis. Research has shown that CAMs are frequently used as methods of treatment with chronic diseases, with positive results (Gale, 2014). For individuals with Multiple Sclerosis, these treatments help manage and improve the diseases' impact on various physical, psychological, and psychosocial aspects of life in ways conventional treatments, such as Disease Modify Agents (DMTs), are unable to or are not as effective in doing so (Kim et al., 2018; Nayak et al., 2003; Olsen, 2009).

It was hypothesized that perceived stress and negative affect would decrease, and positive affect would increase for participants in both conditions, with the most significant levels of change occurring in those who participated in the art making intervention in addition to and following a guided imagery intervention. Overall, analysis of both participant's scores on the Likert- type Perceived Stress Scale and the Positive and Negative Affect Scale (PANAS) yielded results that mostly supported what had been hypothesized for the intended study. However, the hypothesis was in fact, not fully supported.

As predicted, the results of the Likert- type Scale Perceived Stress Assessment indicated there was some degree of decrease in perceived stress for both participants, with the greatest change seen in the experimental condition participant. Results of pre-to-post Negative Affect (NA) scores on the Positive and Negative Affect Scale were also consistent with the hypothesis in that a decrease in negative affect was seen in both participants, again with the greatest decrease occurring in the experimental condition participant. However, analysis of pre to post Positive Affect (PA) scores on the PANAS did not support the hypothesis that positive affect would decrease for participants in both conditions. While positive affect increased for the experimental condition participant, there was a decrease in positive affect for the comparison condition participant.

The difference in pre-post test scores for the comparison condition participant was not notable and therefore does not fully support the hypotheses that there would be a reduction in both conditions. Above all, the results of this study may have been influenced by fact that the initial study and interventions were specifically designed for individuals with Multiple Sclerosis. There is the possibility that the study intervention simply was not beneficial or impactful for the comparison condition participant who does not have a diagnosis of MS. The participant reported relatively low perceived stress and negative affect on the pretests, with a lack of notable reduction in stress and negative affect post-test, whereas the experimental condition participant reported high perceived stress and negative affect pre-intervention, perhaps causing the decrease to be more notable.

This difference in reported levels of perceived stress and negative affect between the two participants may be related to the fact that one participant reported having Multiple Sclerosis while the other did not. Having a diagnosis of MS may correlate with and contribute to the higher levels of perceived stress and negative affect reported by the participant with the disease, whereas not having a diagnosis of MA may have contributed to the difference in levels of perceived stress and affect reported by the participant without the disease.

In addition, following the completion of the study, the comparison condition participant shared that the guided imagery (GI) “was so relaxing and calming” it made him want to sleep. The participant also explained that although he did not feel his positive affect was negatively impacted by the GI intervention, in that moment it was difficult for him to relate to words on the Positive Affect (PA) mood scale such as “excited”, “alert”, “attentive”, or “active” due to the fact that the GI was so calming and relaxing, it made him want to sleep. The decrease in PA scores post-test does not necessarily suggest guided imagery has a harmful impact on positive affect,

but rather that the relaxing and calming post guided imagery state leads to lower scores on certain PA items that generally relate to feelings of high energy.

The experimental condition participant reported higher scores post-test on items on the Positive Affect (PA) mood scale that relate to high energy. It is possible to theorize that the act of making art while calming, cathartic, and distracting, may also produce feelings of increased energy, alertness, or concentration, thus increasing post-test scores on the PA mood scale. Creating artwork may also produce feelings of pride, inspiration, and determination, all feelings and emotions measured on the 10-item PA mood scale. The positive results seen when art making is integrated with guided imagery, rather than just using guided imagery alone, reflects Baron's (1989) belief that the integration of guided imagery with art therapy may have a significant role in initiating and supporting the intimate connection between mind and body.

The artwork (Figure 1) created by the participant in the experimental condition includes colors, imagery, and themes that are indicative of higher levels of positive affect and lower levels of stress and negative affect. During the guided imagery, the participant was asked to imagine a favorite or safe place. Following the art making, the participant shared that her painting was of "a bright yellow, orange and red sunrise over a hill full of bloomed flowers." The imagery of the bright sunrise and fully bloomed flowers, as described by the participant, is reflective of the positive affect and low levels of stress and negative affect seen on the participant's earlier Positive and Negative Affect Scale and stress assessments.

Wadeson (2003) discussed how art making allowed for expression of emotions through color, while also evoking positive emotional responses. The description the participant provided about her artwork in addition to the visibly warm, bright colors that fill the entire painting, suggests that the participant may have been able to use the artwork and color to express the

positive emotions she experienced. Baron (1989) believed that integrating guided imagery and art therapy could play a significant role in initiating and supporting the intimate connection between the mind and body. The painting depicting a sunrise over a hill of bloomed flowers that was created by the participant, suggests she may have concretely depicted and illustrated images that were evoked during the guided imagery. This may have then allowed for greater insight into her feelings and emotions, and any feelings and emotions related to her diagnosis.

Hypothetical: Hypothesis Was Supported

The following is a discussion about hypothetical results on a sample of ($N \geq 30$) that support all the hypotheses. Findings of this present study support previous research on the use of guided imagery and art therapy to manage numerous aspects of chronic illnesses, more specifically Multiple (Case et al. 2018; Elkis-Abuhoff et al. 2008; Gale, 2014; Lee et al., 2013; Menzies et al. 2012; Monti et al. 2016; O'Neill and Moss 2015; Wadeson 2003

In the study conducted by Menzies et al. (2012), significant improvements in perceived stress were seen in women with fibromyalgia after a 10-week daily guided imagery intervention, results that were also similar to those seen in this study.

Findings suggest that the integration of guided imagery and art therapy, two Complementary and Alternative Medicine modalities, are beneficial for individuals with Multiple Sclerosis. While the use of guided imagery on its own produced results that demonstrated the potential to significantly reduce stress and negative affect and increase positive affect, the art making intervention plus guided imagery condition had unique effect.

Lack of diversity in the sample was a limitation in the study. The ($N \geq 30$) participants in this study consisted mostly of middle-aged white women and men. The current study does not provide results that are reflective of how GI and art therapy may impact more diverse groups. A

study with a larger sample with more diversity in gender, race, ethnicity, age, length of MS diagnosis and MS subtype needs to be conducted.

Future research should include examining the effects of guided imagery and art therapy through a longitudinal, randomized controlled trial, which would provide further insight into the long-term effects of repeated use of guided imagery and art therapy on stress, affect, and over-all wellbeing. A long-term longitudinal study may also allow assessment of how GI and art therapy may affect stress and negative and positive affect experienced in the past week, month, or several months. This will allow for a better understanding of how effective these two interventions are in reducing stress that has been experienced over longer periods of time. Future research should also consider using other art material for art making in order to gather information about its effectiveness.

Hypothetical: Hypothesis Was Not Supported

The following is a discussion about hypothetical results on a sample of ($N \geq 30$) that do not support the hypotheses. Based on the analysis of participants' scores on the Likert-type Scale Perceived Stress Assessment and Positive and Negative Affect Scale, the hypotheses were not supported. The participants in the experimental group experienced a significant increase in perceived stress and negative affect, and a significant decrease in positive affect from pre to post test, whereas the participants in the control group experienced a significant decrease in perceived stress and negative affect, and a significant increase in positive affect from pre to post test.

The results of this study are not consistent with the proposed hypotheses or with the broader research on the efficacy of guided imagery and art therapy on stress, affect, and overall well-being in individuals with chronic illnesses or more specifically MS. Several studies showed positive and favorable results when using guided imagery and art therapy, to manage numerous

aspects of varying chronic illnesses, such as Multiple Sclerosis (Case et al. 2018; Elkis-Abuhoff et al. 2008; Gale, 2014; Lee et al., 2013; Menzies et al. 2012; Monti et al. 2016; O'Neill and Moss 2015; Wadeson 2003)

There may have been various contributing factors that led to these results. Since the results were not favorable when art making was added as an experimental condition to the guided imagery condition, it seems fair to postulate that art making contributed to stress. If participants do not have art making experience or did not feel confident about their artwork, they may have experienced feelings of nervousness, anxiety, or may have felt they were being judged. Art making may have increased negative affect and stress, which may in turn lead to decrease of positive affect. Due to the common belief that artistic skill is needed to create artwork, it is reasonable to consider that the participant may have experienced additional negative feelings in regard to the final artwork made, such as feelings of inadequacy or disappointment. The guided imagery intervention alone may have had a more overall positive effect than the art making because it did not create the same kind of pressure art making may have.

Another factor to be considered is the use of fine motor skills when creating artwork. Individuals with Multiple Sclerosis often struggle with fine motor skills as a result of the disease. Struggling to use fine motor skills may not only cause negative emotions but may also evoke unwanted reminders of their chronic illness- both of which can impact stress and result in negative affect.

One of the more significant limitations that may have affected this present study's external validity was the use of various settings to conduct each of the sessions. The physical and psychological impacts of MS make traveling long distances difficult, uncomfortable, or impossible for individuals. It would have been challenging to conduct the study in the same

location each time as participants would have been less likely to participate if they feel uncomfortable which can cause further stress. In order to provide an environment that was safe, comfortable, and accommodating for the various specific physical and psychological needs of those with MS, the sessions were conducted in various locations that allowed for easier travel and provided accessibility to facilities with wheelchair ramps, elevators, and restrooms for the disabled. Although this was necessary for the safety and comfort of the participants, there may have been various environmental factors in each of the settings that affected participant behavior, engagement, and responses during the study.

In future research, the study should be conducted as longitudinal examination of GI and art therapy's impact on stress and affect. The study's design of only assessing the one-time impact of GI and art therapy on current perceived stress and affect makes it difficult to truly understand the impact of these two modalities. It would be beneficial to run the study again in ways that both assess the impact on stress and affect that has been experienced over the past days, weeks, and months, while also assessing the long-term impact of using guided imagery and art therapy on a regular, consistent basis.

Since the addition of the art making condition to the GI increased stress, it would also be practical to consider the ways the art making process could be adjusted and changed to be more beneficial for those with MS. If it is conducted as a longitudinal study, the repetitive engagement with the art making process may also allow individuals to become more comfortable and confident in art making, making the process less stressful and more enjoyable.

It may also be wise to assess the effects of changing the sequencing so that art making precedes guided imagery. The small sample size of only ($N \leq 30$) participants was also a limitation in this study and larger and more diverse sample should be recruited when conducting future research.

A larger sample would also allow for more diversity in gender, ethnicity, age, length of MS diagnosis, and subtype of MS diagnosis which would support results that emphasize the impact of GI and art therapy not only on more diverse populations of individuals with MS but with different subtypes as well.

Conclusion

Although the study was not conducted as originally planned, the results of the trial run with two participant volunteers yielded some results suggesting that the integration of the two CAM modalities, GI and art therapy, it seems more beneficial on stress and affect in adults with MS, than just using GI on its own. Individuals who were initially interested in participating expressed their elation about the idea of more research being done to find new and alternative ways to help serve the MS community. There is a strong demand and need for effective and impactful alternative treatments, and for this reason further research is vital and necessary.

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Figure 1



Appendix A

Recruitment Flyer

The flyer features a watercolor background with blue and green washes. At the top, the text "Participants needed for" is followed by a large, bold title "Multiple Sclerosis" and below it, "Graduate Research Study".

Participants 18+ with a diagnosis of Multiple Sclerosis have the opportunity to take part in a research study evaluating the effects of mindfulness-based interventions on stress.

Participants will participate in one 30-45-minute session.

PREVIOUS EXPERIENCE NOT NECESSARY

Where: Various locations	Snacks and refreshments following the study!
When: Various dates throughout March & April 2020	

If interested in learning more or participating please call, text, or email:

Viviana I. Torres 203-900-7172 vitorres@albertus.edu

MS STUDY Viviana I. Torres 203-900-7172 vitorres@albertus.edu				
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Appendix B

Demographic Questionnaire

Demographic Questionnaire: Multiple Sclerosis Study

Age: _____

Gender (check one that best fits):

- Man
- Woman
- Non-binary/genderqueer
- Prefer to self-describe: _____

Race/Ethnicity (check one that best fits):

- American Indian or Alaska Native
- Asian or Pacific Islander
- Black/African American
- Caucasian/white
- Latinx/Hispanic
- Prefer to self-describe: _____

When were you first diagnosed with Multiple Sclerosis?

How long have you experienced symptoms related to your MS diagnosis?

Which type of Multiple Sclerosis do you have?

- Primary Progressive
- Relapsing-Remitting
- Secondary Progressive
- Progressive Relapsing
- Unsure

Appendix C

Guided Imagery Script

Guided Imagery Script: Multiple Sclerosis Study

For this guided imagery you are welcomed to close your eyes or soften your gaze.

Inhale deeply through your nose and out through your mouth.

Inhale.....exhale.....Inhale.....exhale.

Take a few moments to just slow the pace of your breath. Notice the steady rhythm of inhaling and exhaling. Try to inch your breath lower into your body as you breathe, filling up your lungs from the bottom up, using your stomach muscles to gently pull your breath downward. It's almost as though you are breathing in and out of your belly button.

As you do this let the room and world around you fade away so that you are here, present in your body. Imagine you are in a calm and quiet place. This can be any place at all. A favorite place. A place filled with warm memories. A place you feel safe. A place you wish you could be. Take a few moments to think about this place. To start to imagine yourself in that place before you embark on your journey ahead. As that place slowly comes more and more into focus, you begin to notice all the sites.....smells.....sounds.....perhaps even tastes. You take a few moments to let your mind and body process these sensations, remembering to breath in and out.

As your mind begins to settle into this place around you, you begin to focus on your body and your breathing. You are breathing slow and rhythmically.

Breathe in.....Breathe out.....In.... and out.

You slowly let your focus shift from the environment around you, to your body. You begin to take notice of the physical sensation you are experiencing in this moment, paying attention to the areas of your body where you are experiencing any tension.....stress.....pain.....any negative sensation. You start at your feet.....to your ankles.....calves.....knees,thighs.....hipsmoving up to your stomach.....to your chest. Take notice of your hands, up through your arms, up into your shoulders.....then your neck, ending with the tip of your head. Recognize the places in your body where these sensations are the strongest and inhale deeply and exhale.

You begin to see soft spots opening throughout your body, especially in the places you feel the most negative sensations. All that tension you are feeling, that stress, pain.....you begin to feel the drain of these sensations from these spots. Slowly release these feelings and willingly let

them leave your body. Feel the drain from your feet, to your ankles, calves, knees, thighs, hips, moving up to your body to your stomach, to your chest.

You inhale and exhale.

You gently pull in clean, refreshing air, and as you breath out, you send out all of those negative sensations. Refreshing breath in, negative out. Feel yourself sending soothing, fresh air to those places.

Inhale.....Exhale.....

Inhale.....Exhale.....

Feel your whole body becoming more relaxed as you exhale, releasing the sensations that are not serving you well. Feel the calm and quiet with each new breath. You are making room and space within yourself. Comfortable, pain-free, worry-free space within yourself.

As you look up into the distance, you see a small ball of light beginning to emerge over the horizon. You notice the more you allow the tension and stress to leave your body, the more you fill your body with refreshing air and make a comfortable place within yourself, the bigger and closer to you this ball of light becomes. As this ball of light moves closer to you, you can feel its warmth and brightness. You become aware that this light is special. You want to let this light in, to fill your body with its warmth. Become aware of your heartbeat. With each breath in and out, your heart is steadily moving the life-force through your body. Perhaps you can feel it. Maybe you can hear it. See if you can open your heart to this light. Your heart has perhaps endured cold pangs of fear or hurt or weariness, stress, pain, or tension, but for right now it is open, calm, welcoming to this ball of light.

You feel this ball of light enter through your heart. Feeling the intensity, but gentleness of its radiating warmth. You are aware this light is kind and wishes you well. As this light fills your heart, notice what color it becomes. Notice its vibrating energy. Notice how your heart feels filled with this light. You take a few moments to just be here, present, alive, awake with this special light filling your heart. There is no stress.....no tension.....no pain.....Just warmth and calmness.

Inhale.....Exhale.....

Inhale.....Exhale.....

Now allow your heart to share this light with your body.

Inhale deeply.....Exhale.....

Inhale..... and exhale making room for this light to flow and radiate through those soft spots all throughout your body. As it flows and fills every part of your body, feet through your chest to the top of your head and every spot in between, you feel yourself bathed in the caring, warmth of

the light, the goodness. You allow yourself to absorb the warmth and radiance of the light into every inch of your body. Absorb it into any parts of yourself that are of concern to you, any of those places in your body you experienced unwanted sensation.

Inhale.....and exhale.

Inhale.....exhale.....

You can feel an increased warmth or vitality in these parts of your body. There is only tranquility, relaxation, calmness. And light. You notice your body and the space around you radiating with this light. Light filling your body, light radiating throughout you, light flowing through your body with calm, warm, vibrating energy. Sending big rays of light into the space around you. Take a few quiet moments to just be here in this moment, with this warm radiating light.

To appreciate it.

To truly and deeply feel it.

To notices how your body feels.

Inhale.....Exhale.....

Inhale.....Exhale.....

Take a few final moments to be at one with this moment and this experience. Before this light departs, it gives you a gift. This gift is of any size, any shape. Perhaps you can hold it or touch it. It is something important. Perhaps it's an object, perhaps a picture, a word, a symbol of something. Perhaps you recognize this gift or it has a meaning that is clear to you. You don't worry if it is not recognizable or clear just now. You simply take it in and know that it may be something you need right now as you heal, as you move toward wholeness.

Before you approach the end of this journey and experience you have been on, you take a look around and are aware of the color of the light as it starts to leave your body. You take a look at what the color of this light is.....the warmth.....the sound of your heart.....the feeling of your body.....the calm and serenity that surrounds you. You thank this light for its gift to you. You note the memory of this experience as the ball of light slowly starts to move farther into the distance. Perhaps you promise yourself and this light a repeat of this journey at another time. After all, you are the bringer of your light.

As you look around at this place one last time, you note how wonderful this place truly is, and realize you can return any time you so choose.

Inhale.....Exhale.....

Inhale.....Exhale.....

Watch as this place slowly fades away.

Breathe in and out.....

In.....and out.....

See if you can move beyond this place and start to return to this room and your chair.

Breath in.....Breath out

In and out.

As you are ready, make that short trip with your awareness. Become aware of the chair that supports you, aware of your toes and fingers, legs and arms. Chest and shoulders. Neck and head. Perhaps you'd like to rub your legs or your arms.

Inhale.....Exhale.

Inhale.....and Exhale.....

And when you are ready, you may open your eyes and return to this place and time.

Appendix D

Consent Form

Consent Form: Multiple Sclerosis Study

Dear Participant,

This study is being conducted as part of the requirements for the Masters of Arts in Art Therapy and Counseling degree at Albertus Magnus College.

This study will ask participants to complete several questionnaires and participate in self-soothing or coping activities. There are no potential risks anticipated. However, for some people reflecting on one's experience can bring up emotional or psychological discomfort but is not greater than those ordinarily encountered. Potential benefits of participation include enjoyment of the activities and satisfaction in participating in research aimed to better understand the experiences of people living with MS. Your participation, responses, and material will be included in the research study, but will remain confidential, and your identity will not be connected with any of the data collected. Your participation is voluntary, and you may withdraw at any point without penalty or prejudice.

This study has been approved by the Institutional Review Board (IRB) at Albertus Magnus College. If you have any further questions or concerns about this research, you can contact:

Art Therapy Advisor

Professor Rebecca Arnold (rarnold@albertus.edu)

Psychology Advisor

Dr. Bonnie Pepper (bpepper@albertus.edu)

Chair of IRB

Dr. O'Connell (soconnell@albertus.edu).

Thank you,

Researcher

Viviana I. Torres-Calcagno (vitorres@albertus.edu)

I willingly consent to participate in this study. I understand that all data is confidential and that I am free to withdraw from this study at any point.

I am 18 or older

Signature: _____ Date: _____

Appendix E

Debriefing Statement

Debriefing Statement: Multiple Sclerosis Study

Thank you for participating in this study. Your participation was greatly appreciated. The goal of the current study is to examine how guided imagery and watercolor painting affects mood levels in individuals with Multiple Sclerosis. Half of the participants were assigned to the guided imagery group and half to the guided imagery followed by watercolor painting group. This was done in order to compare the results of the two groups and evaluate the effect of adding an art intervention to the guided imagery experience.

In an effort to preserve the integrity and validity of this ongoing study, I ask you to please not discuss any details of this study with anyone else.

If you are interested in learning more about the topic, please refer to the journal articles

Case, L. K., Jackson, P., Kinkel, R., & Mills, P. J. (2018). Guided imagery improves mood, fatigue, and quality of life in individuals with multiple sclerosis: an exploratory efficacy trial of healing light guided imagery. *Journal of Evidence-Based Integrative Medicine*, 23. doi: 10.1177/2515690x17748744

Elkis-Abuhoff, D. L., Goldblatt, R. B., Gaydos, M., & Corrato, S. (2008). Effects of clay manipulation on somatic dysfunction and emotional distress in patients with parkinson's disease. *Art Therapy*, 25(3), 122-128. doi:10.1080/07421656.2008.10129596

If you would like the results of the study following completion, please fill out and tear off the bottom of this form. Please note that results are not individualized but can only be shared in aggregate.

Thank you again!

Viviana I. Torres-Calcagno
vitorres@albertus.edu

Please email me results of the study

Email address:

Appendix F**Art Release****Art Release: Multiple Sclerosis Study**

I, _____ give permission to the researcher, Viviana I. Torres
(Participants Name) **(Researchers Name)**

to photograph my artwork created during the Multiple Sclerosis Study for education purposes, indicated below.

I understand that all photographs and observations will be presented in a respectful and professional manner. I understand that the participants will remain anonymous and names will not be connected to the artwork.

I agree to have my artwork photographed without identifying information for the following purpose(s), please check any and all that apply:

- Reproduction and/or presentation at a professional conference.
- Reproduction, presentation, and/or inclusion within academic assignments including but not limited to a graduate work
- Publication in a professional journal

I, _____ DO NOT give permission to the researcher, Viviana I. Torres
(Participants Name) **(Researchers Name)**

to photograph my artwork created during the Multiple Sclerosis Study for education purposes indicated above.

I have received a copy of this form for myself.

Signature: _____ Date: _____

*You may revoke your permission at any time. Please keep in mind that if you decide to withdrawal your release, it may be difficult or impossible to contain information that has already been publicly disseminated. If you wish to no longer give permission to share images of your work in the future, please contact:

Viviana I. Torres at vitorres@albertus.edu.

Appendix G

Art Directive Script

Art Directive Script: Multiple Sclerosis Study

You are now invited to participate in an art making intervention. All of you have been given a sheet of watercolor paper, a watercolor paint pallet, two paint brushes, a cup of water, and paper towels.

For the art intervention, I ask everyone to create a painting in any way you want portraying how you currently feel. (**You can paint abstractly using line, color, shape or symbol, or you can paint something more realistic. Whatever you want.**) You will have 20 minutes to work on your painting. I will keep track of time and let you know when you have 10, 5, and two minutes left. If you finish before the 20 minutes, I just ask that you sit and wait patiently for others to finish. If you have any questions, please do not hesitate to ask. You may now begin.